

Motorola believes that it is up to the Commission to set guidelines for compatibility, quality of service, and compliance with cellular objectives. The industry should then work within that framework to develop specific standards meeting those goals. The Commission should ultimately sanction the results, but industry should take responsibility for development of the standards.

In adopting regulations in this proceeding, the Commission must consider and enforce the nation's antitrust policies. Competition in telecommunications could be endangered by cellular systems in several ways, such as cross-subsidization, discriminatory practices, and vertical integration. In order to address these potential problems, the Commission should permit wireline carriers to operate cellular systems only through fully separated, arms' length subsidiaries; operators of cellular systems should not be permitted to provide or maintain mobile units or manufacture any radio equipment and cellular systems should not provide dispatch services.

Motorola does not believe the Commission can preempt all regulatory power over cellular systems. The Commission can, however, establish jurisdiction over entry. It can set the criteria that an applicant must meet. In selecting from competing applicants, the Commission should streamline its procedures; a lottery may be a desirable approach, although there is legal uncertainty involved.

National Aeronautics and Space Administration (NASA)

NASA believes a commercial mobile satellite service, augmenting and integrated with a terrestrial mobile service can help achieve the Commission's objective of a compatible nationwide mobile radiotelephone service based on the cellular concept. It may also have applications in the areas of dispatch, interstate trucking, paging, national security, and emergency response. An effective system for emergency response communications must be able to operate anywhere at any time, despite outages in the terrestrial communications network.

Space communications techniques can extend mobile radiotelephone service to areas with low population density, where cellular service is unlikely to be available. Enlarging cell size as a response to decreasing traffic density is limited, in terrestrial systems, by propagation mechanisms; in satellite systems, however, areas as large as necessary may be served by a relatively constant signal level.

The band 806-890 MHz was made available for mobile-satellite services in Region 2 by the 1979 World Administrative Radio Conference. There is substantial private sector and international interest in developing the mobile-satellite concept, and NASA is conducting studies for its implementation. NASA asks that the Commission make no decision in this Docket that would foreclose the possibility of a mobile-satellite system economically operating in the 825-845 and 870-890 MHz bands or in any other portion of the 806-890 MHz bands.

National Association of Business and Educational Radio, Inc. (NABER)

NABER is an association representing members with interests in the Business Radio Service and in private land mobile radio; it is also a Business Radio Service frequency coordinator. NABER's comments concern the allocation of frequencies from the 800 MHz reserve bands for cellular service and the provision of fleet-call dispatch service by cellular systems.

Release of 20 MHz of additional spectrum for use by cellular systems at the present is unnecessary, premature, and excessive. There has been no public need demonstrated that would justify additional allocations. The Commission should authorize to any cellular operator only as much spectrum as is needed. NABER is concerned that if this spectrum is reallocated for use by cellular systems, the business radio user will be forced to meet his needs by accepting service from a common carrier. Users should rather be able to choose from among several operations—trunked, conventional, and cellular systems.

Cellular systems were intended to accommodate public demands for radio telephone service primarily, and only secondarily to provide a limited form of dispatch service. Conversely, a business radio user primarily needs dispatch service and has only an ancillary need for interconnected mobile telephone service. A major characteristic of a dispatch system is fleet calling. The reasons for not allowing fleet-call dispatch on cellular systems have not changed; cellular systems' efficiency will be substantially reduced by using multiple full-duplex channels for fleet calling. Accordingly cellular systems should not be permitted to offer fleet-call service.

National Association of Regulatory Utility Commissioners (NARUC)

NARUC believes that the market within which cellular systems will compete includes conventional common carrier two-way mobile service because both services seem to meet the same need. The actual degree of competition between the two depends on the cross-elasticity of demand between them; this is difficult to predict. Cellular service is likely to be more expensive at the outset than existing services; however, the frequencies for conventional services are limited, resulting in a backlog of applicants for service in many areas, which may mean that the higher rates for cellular service may not be a factor. The improved quality of cellular service may also justify the higher rates. Ultimately the cost of cellular service may go down due to economies of scale, resulting in a high degree of cross-elasticity with conventional service. Wireline local exchange service will not necessarily be within the relevant market in the near future, but it is certainly within the potential relevant market.

NARUC believes the market definition has a direct bearing on the issue of federal/state jurisdiction. Cellular systems will be actually competing with existing common carrier mobile systems currently under state regulation. To accord direct competitors differing regulatory status is unfair and unjustified. The Commission's attempted distinction between the two—that traditional mobile services are primarily local, while cellular systems serve both local and national purposes—is a difference more of degree than of kind. Individual cellular systems will be primarily local in that they serve particular geographical markets like local exchanges. Section 221(b) of the Act is a clear statement that Congress did not intend to preempt state regulation of mobile common carriers.

The potential for competition with the local telephone exchange also provides a strong argument against preemption: if cellular systems make possible the creation of a substitute for the local exchange network, the states clearly have authority to regulate them under Section 221(b).

The Commission's concern about incompatibility between federal and local regulations is no justification for preemption. The states have not operated to frustrate the development of traditional service, and they have neither the incentive nor the desire to burden the development of cellular service. State policies have served to foster competition in the conventional mobile market, and will do so in the cellular market.

National Telecommunications and Information Administration (NTIA)

The service advantages of cellular technology over that currently employed in mobile radio services in high density markets are well known. Since 1968, cellular technology has given every indication of being an economically viable and spectrally efficient means of delivering telecommunications services to the public. After twelve years of policy study, it is time that this technology be allowed to deliver its intended services. NTIA's fundamental concern, therefore, is that judgments should be balanced in favor of delivering this technology to the communications marketplace.

We view cellular as a competitive service, at least in the near term, and see no need for entry, exit, or rate regulation of providers, regardless of the market structure selected. Cellular systems will offer service of a similar kind, price-competitive with existing common carrier mobile service and far superior in quality; NTIA expects cellular

services to quickly take customers from these existing services. The cellular systems will also be in competition for dispatch services with SMRs; this competition is a healthy prospect and in the public interest. The likelihood of competition with wireline local exchange service is not easy to predict, because local exchange rates do not necessarily reflect costs. In the short term, NTIA does not believe the cellular system will be competitive with wireline; in the long run cellular may be cost-competitive, but the degree of competition cellular can offer in large markets will be limited by the amount of spectrum available. The speculative possibility of long term competition between cellular and wireline does not warrant banning wireline carriers, or overly restricting them in the provision of cellular services.

Because NTIA views cellular as a competitive service that should be unregulated, it advocates preempting state exit and entry regulation, but not rate regulation, at this time. It would, however, strongly urge the states to forebear from economic regulation of these services.

The market structure for cellular service should vary with the traffic densities in particular service areas. In high-density areas a truly "bona-fide" cellular technology is needed. NTIA tentatively concludes that losses in ultimate cell traffic capacity (due to losses in trunking efficiency) and increased facilities costs for multiple cellular systems, when balanced against benefits of added competition, dictate that no more than two service providers be permitted in such areas. In moderately dense areas, cellular-compatible systems could be permitted. Here, added competition beyond two providers may be possible, depending on the reduced facilities costs. As traffic density further decreases to rural levels, cellular-compatible technology should still be required to satisfy the goal of nationwide compatibility but the market itself will limit the number of competitors to less than the frequency allocations would otherwise allow.

While NTIA believes that no more than two entities should be basic system operators in a high-density area, the marketing and tailoring of cellular service to end users can and should be performed by multiple competing resale entities. Basic system operators should be prohibited from restricting the resale and sharing of cellular capacity. The basic system operators may themselves participate in selling to end users if there are adequate safeguards to insure they do not unfairly disadvantage outside resale entities. NTIA does not support restricting an underlying carrier to "wholesaling."

NTIA believes that dominant carriers should be required to establish separate subsidiaries for competitive services such as cellular. The existing prohibitions on wireline providers in the manufacture, sale, and service of cellular mobile/portable equipment should be removed, consistent with the Commission's general deregulatory policies. There should likewise be no prohibitions on the manufacture, sale and service of base station and switching equipment. Furthermore, NTIA opposes the forced licensing of cellular technology.

The biggest obstacle to expeditious provision of cellular service in the marketplace is the potential for comparative hearings between mutually exclusive applications. To provide a fair opportunity for all to compete for spectrum space while taking reasonable steps to insure that the assignment process moves forward expeditiously, NTIA favors a modified version of the first hybrid approach proposed in the NOI/NPRM. This would entail special processing criteria; a board either to make the decision or isolate factual issues; in the event the board found equivalency, an award made among equally ranked applicants by lot; and in the event of a factual issue, an expedited hearing process on the issue or issues, with specified time periods. In addition, the even split in frequencies between wireline and radio common carriers previously established by the Commission should be followed here.

NTIA believes standard signaling, channel assignment and set-up protocols at the base-mobile interface should be mandated to insure nationwide compatibility. There should be no restriction on the provision of dispatch service, including fleet-call, by cellular systems. Cellular systems are less efficient handlers of fleet-call dispatch than

conventional systems, and the marketplace is likely to direct most fleet-call users to the more efficient, and therefore less expensive, private systems. Cellular subscribers should not be denied the opportunity to use the cellular system for occasional fleet calls.

NTIA feels strongly that the 20 MHz reserve should not be released at this time, but that cellular systems experiencing or anticipating saturation in major market areas should be required to meet the situation by cell size reduction until further reduction is impractical.

NEC America, Inc. (NECA)

NECA, a wholly owned subsidiary of Nippon Electric Co., Ltd. (NEC), is a manufacturing and marketing company specializing in high technology industrial and consumer goods. NEC has participated in the development of mobile telephone systems in many nations, and in development of cellular-type systems in Japan, Australia, and Mexico.

NECA urges the Commission, in devising spectrum allocation, standards, and policies for cellular systems, to retain sufficient flexibility to permit and encourage the development and use of new technologies and new systems. Although the Commission has been willing to revise many of its original concepts, it has never abandoned its commitment to encouraging the pursuit of new and different approaches to cellular service. The fact that cellular service is ready for commercial operation does not mean that the Commission should foreclose the development of possible alternatives to present cellular technology. Some reasons for continuing to look at alternatives are that cellular systems may need decreasing amounts of spectrum and that there may be an increasing need for local communications but a less certain demand for nationwide-compatible communications.

Accordingly, NECA believes the Commission should retain its allocation of 40 MHz for "original" cellular systems (those consistent with the final policies to be adopted in this proceeding), but allocate an additional 20 MHz from the reserve bands for a cellular "pool." From this "pool," an additional 10 MHz would be available for growth of "original" cellular systems, and 10 MHz would be for the development of "alternative" cellular systems. After five years the Commission would revisit the allocation of the "pool" frequencies. NECA submits criteria for judging whether particular alternative systems should be licensed; generally, any such system must be a bona fide alternative, and compatibility with "original" or other "alternative" systems would be unnecessary.

NECA believes there is a significant likelihood that alternative systems would be developed under its recommended approach. It describes the cellular system that NECA advocates; this system, while cellular in concept, utilizes lower signaling speeds than the AT&T and Motorola systems, and is not compatible with them.

NECA requests that the Commission hold oral arguments before adopting rules and policies for cellular systems.

Radio Broadcasting Company (RBC)

RBC is a radio common carrier operating in Pennsylvania, Delaware, and New Jersey; it is also a Specialized Mobile Radio System operator in Philadelphia and New York City.

RBC believes the Commission should make separate 20 MHz allocations for cellular systems to be operated by wireline and non-wireline carriers, with 20 MHz allocated as a reserve pool for cellular expansion.

The Commission should not permit cellular licensees to manufacture mobile or base station equipment; otherwise there would be the potential for cross-subsidization by licensees with large manufacturing subsidiaries. If licensee's manufacturing entities are permitted to engage in the manufacture of cellular equipment, they should be required to sell to others at the same price as to their cellular entities. Mobile units should be

unbundled and de-tariffed. The Commission should not allow any restrictions on resale of cellular service, as resellers could, in some instances, compete with the underlying carriers by providing more personalized service.

RBC opposes total FCC preemption of state authority over cellular service. While it would be reasonable for the FCC to preempt technical standards to achieve nationwide compatibility, the states should be allowed to regulate entry; since cellular service will undoubtedly be offered under state tariffs the states should retain authority over who becomes a carrier.

While selection of a licensee from competing applicants by the comparative hearing process is difficult, RBC does not believe the Commission should abandon this process. RBC supports the Commission's proposed methods for streamlining the process, with the exception of eliminating cross-examination.

RBC supports the establishment of a nationwide compatible mobile telephone system. It does not see a need for requiring all mobile and portable units to have all-channel capability, however, because of the cost. RBC also opposes lifting the prohibition of fleet-call dispatch service on cellular systems, in view of the investments made in private SMR systems in reliance on the Commission's prior policies.

RCC of Virginia, Inc. (RVI)

RVI is a radio common carrier operating in various communities in Virginia; it has also filed an application for a developmental, cellular-compatible system in the Norfolk, Virginia area. RVI supports regularization of cellular operations, but believes that development should be continued. The adoption of rules and regularization are not incompatible with further experimentation. Further development is particularly needed in small and medium markets, where less expensive technology may be able to provide adequate, compatible service.

Rochester Telephone Company (Rochester)

Rochester, an independent telephone company, is generally enthusiastic about cellular service. It is, however, concerned that treaty obligations may limit frequency availability near the Canadian border due to potential interference with Canadian television; this issue should be resolved in this proceeding.

The primary service to be affected by the introduction of cellular service will be conventional two-way mobile telephone service. Cellular will not be completely substitutable for conventional mobile telephone service until enough cellular systems have been established for an effective roamer capability to exist. While cellular service may eventually compete with wireline service, this will not take place for many years due to its cost.

Rochester believes that the Commission should authorize two or more carriers per market, each being authorized no more than 20 MHz initially. The marketplace should determine the number of entrants, and the Commission should not limit the number artificially. To accommodate a maximum number of entrants the Commission should assign each entrant no more spectrum than it needs. In order to encourage competition, there should not be rules handicapping wireline carriers wishing to enter the market. A separate subsidiary requirement would be inconsistent with the *Second Computer Inquiry*; separate accounting treatment should be sufficient.

Applicants should be required to disclose their financial and capital structure, a plan for providing service, and a demonstrated knowledge of the business.

Because cellular service will not offer effective competition to wireline service, wireline carriers should not be restricted in their ability to provide it. Wireline carriers should be permitted to offer service both within and without their franchised service

areas. This may allow the development of cellular service in areas that would otherwise be unserved.

Rochester sees no benefit in restricting cellular licensees or their affiliates in the supply or maintenance of mobile equipment. By unbundling and de-tariffing the mobile unit the common carrier would be able to compete most effectively; carriers should be given the option of tariffing the mobile unit, however. Rochester agrees with the Commission that proscriptions on resale would limit the options available to consumers, and it believes resellers should be unregulated.

Rochester questions whether state regulation of entry is necessary if competition is to be the norm. It supports FCC preemption of jurisdiction over technical standards and entry.

A selection from among competing applications should be made, after an initial determination of qualifications, by auction or lottery. Letting market forces govern the participants would provide the most options for the consumer.

Rogers Radio Communication Services, Inc. (Rogers)

Rogers, a radio common carrier in Chicago, Illinois, believes the market in which cellular systems will compete is an expanded two-way mobile and portable public telephone market. If priced to be compensatory, cellular service should compete in only a slightly cross-elastic manner with wireline telephone exchange service and conventional mobile telephone service. Cellular service may possibly be useful in lieu of wireline at temporary locations or in some rural areas, but will not be fully cost-competitive with wireline in general.

With regard to the establishment of competing cellular systems within a market, Rogers opposes any preferential treatment, such as a separate channel group assignment, for wireline carriers. Radio common carriers have competed vigorously with each other for their limited channel allocations in the past, while wireline carriers were guaranteed frequencies from their exclusive allocations. Despite this handicap, RCCs have served more subscribers than the wireline carriers. The Commission should initially limit the eligibility of applicants for cellular authorizations to those who are presently licensed and certificated Domestic Public Land Mobile Service operators. Limiting eligibility in this way for the first three years would reduce the number of competing applicants, yet insure the existence of a pool of qualified providers of mobile telephone service; this closed entry period would permit prompt cellular development. Rogers vigorously opposes the "unlimited entry" alternative discussed in the NOI/NPRM.

During the first three years, Rogers would also restrict any applicant (and its affiliates) to no more than five of the thirty largest, and no more than five smaller, markets. Rogers would require a wireline carrier to establish a separately managed subsidiary for cellular service; this is essential for insuring fair competition. Manufacturers of mobile radio equipment should be precluded from being cellular licensees. Furthermore, AT&T and GTE should be prohibited from supplying mobile units to subscribers.

Rogers believes cellular licensees should be required to provide base station services to other carriers for resale. If wireline carriers choose to offer cellular service only on a wholesale basis, they should be able to do so directly, without a separate subsidiary; if they choose to market equipment and service on a retail basis, however, they must do so through separate subsidiaries on an arms-length basis. Rogers opposes any limitation on fleet-call dispatch or conference call service.

The Commission should not utilize chance to select from among competing applicants. They should be compared in an expedited proceeding, based on their past performance in the DPLMRS, their financial and managerial strength, and their initial and long-range growth plans. Rogers opposes federal preemption of state jurisdiction over entry, rates, and earnings of cellular carriers. It is unlikely that state entry regulation would conflict

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with FCC objectives; since there already exist many state certificated entities, such problems, if real, would affect only new entrants, and would not delay the provision of cellular service to the public by existing common carriers.

Southern Pacific Communications Co. (SPCC)

SPCC, a specialized common carrier, believes cellular communications technology has great potential as an alternative to the wireline local exchange. The relevant market for cellular systems is much broader than the common carrier two-way mobile market. Cellular systems, as well as conventional common carrier mobile systems, are within a broad class of "exchange access services." This class includes, as well, rural radio services and wireline telephone exchange service. Even if cellular is not viewed as a replacement for wireline access, it is an enhancement of wireline exchange service. Accordingly, the Commission should consider the potential extension of market power of monopoly-based wireline carriers when determining policy in this area.

Wireline exchange operators will have the incentive to limit the uses for cellular systems to those that impinge least on their established investment and to control exchange access for the same reason. SPCC therefore urges the Commission to allow a wireline carrier to operate a cellular system only if no other carriers apply to serve the area. SPCC would also set limits on the number of markets a single carrier would be permitted to serve: no more than one of the ten largest, and no more than three of the fifty largest.

SPCC supports licensing as many competing systems in a single market as possible. There must, however, be provision for efficient and nondiscriminatory access to the wireline exchange.

The Commission should, as it proposed, establish only the minimum technical standards needed for maintaining signal quality, insuring nationwide compatibility, and set the qualifications for becoming a cellular operator.

SPCC does not believe there should be any restrictions on the use of cellular service. Resale should be permitted, and non-mobile uses should be allowed to develop if such a market exists.

Special Industrial Radio Service Association, Inc. (SIRSA)

SIRSA is an association of radio users in the Special Industrial Radio Service and the frequency coordinator for that service. SIRSA believes that cellular service will not necessarily best serve the mobile communications needs of the public in the future, but that privately operated systems will continue to serve substantial segments of the public. Private systems have been the superior mode of communications for many users; unless and until cellular systems can provide the same quality they will not be a viable option for many.

In view of the uncertainty of the future demand, SIRSA questions the advisability of allocating 20 MHz of reserve spectrum for cellular systems. Until the quality and cost of cellular service can be weighed by the public any allocation of scarce reserve spectrum would be premature. SIRSA also questions whether 30 kHz channeling, as proposed, is efficient, in view of the 25 kHz channel spacing used in private 800 MHz systems.

SIRSA urges the Commission to retain the prohibition of fleet-call dispatch on cellular systems. The intensive use of cellular systems for fleet calling would contradict the purpose of cellular—to promote spectrum efficiency.

SIRSA supports broad federal preemption in order to establish uniform entry criteria. It opposes the use of auctions or lotteries to select licensees, however.

The Commission should authorize more than one carrier per market in order to promote user choice and obtain the benefits of competition. It appears that the appropriate structure would be two licensees in a market, each authorized to use 20 MHz. SIRSA

believes that wireline carriers should be subject to organizational separation if appropriate for the development of a competitive market.

Star Communications Company (Star)

Star, which is planning to become a Specialized Mobile Radio operator, opposes allowing cellular systems to provide dispatch communications as a primary function.

Telocator Network of America (Telocator)

Telocator is the national council of the radio common carrier industry. The RCCs will be vitally affected by the introduction of cellular service because only by becoming cellular carriers can the RCCs expand their present service offerings or even continue in the business of mobile telephony.

Telocator supports licensing up to two cellular systems per market. The present 40 MHz allocation cannot be divided among more than two carriers if each carrier is to have sufficient channels in each set for trunking efficiency. This is true because dividing the 666 channels available in the 40 MHz allocation into three blocks results in 222 channels per carrier; yet each carrier would require either 309 or 273 channels to have 21 set-up channels and either 24 or 21 sets of 12 trunked voice channels, under the Motorola and AT&T system configurations.

Telocator believes there would be no significant cost penalty in licensing two 20 MHz systems instead of one 40 MHz system. It disagrees with AT&T's assertion that a 20 MHz system would be more than twice as expensive as a 40 MHz system, because the cost increase projection is based on certain assumptions about system design rather than the inherent characteristics of a cellular system.

While the benefits of even limited competition outweigh any asserted benefits of a monopoly system, Telocator opposes the unlimited entry alternative. Such a proposal is based on trafficking in spectrum, which is contrary to the Act, and is antithetical to the efficient operation of a true cellular system. The Commission cannot have it both ways; if it is going to mandate cellular, it must make enough spectrum available to each licensee to make cellular a viable proposition.

Telocator does not believe it is necessary to reallocate reserve spectrum for cellular at this time. The reserve bands should be repositioned between bands reserved for the two competing cellular systems, however, to afford the Commission flexibility in assigning spectrum for cellular expansion or for other uses.

For purposes of determining the competitive impact of cellular systems, Telocator finds three relevant markets: long distance transmission service for mobile telephone originated or terminated calls, wireline telephone exchange service, and common carrier mobile telephone service. In the long distance market, the specialized carriers are likely competitors to AT&T for the provision of the interexchange portion of cellular service. While independent cellular providers will respond to competitive incentives and seek out preferable interconnection arrangements, however, Bell operating companies will likely use only the AT&T Long Lines network.

As to the wireline exchange market, Telocator compares three cost elements with the cost of mobile telephone service. The basic service charge for wireline business service and mobile telephone service are comparable. Mobile unit equipment costs substantially exceed wireline terminal equipment costs, but while this disparity is expected to diminish over time, the mobile unit cost is likely to be the dominant factor in mobile telephone service. The third element is the usage sensitive charges. The pricing structure for usage can serve to limit substitutability of cellular service for wireline service; for example, a three-minute minimum airtime charge, as in the Chicago system, can make a short call much more expensive over a cellular system than over a wireline telephone. Telocator concludes that there is the potential for competition between wireline service and

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cellular service and that a wireline telephone company operating a cellular system would have the opportunity and incentive to engage in anticompetitive activities.

Telocator's third market, common carrier two-way mobile communications service, includes cellular and conventional mobile submarkets. Telocator believes the competitive impact of cellular on private dispatch will be minimal. Telocator anticipates that the offering of cellular service will subsume conventional service, because of the comparable price, improved service quality, and greater spectrum allocations involved in cellular. Since many urban areas have more than two conventional mobile licensees, under the proposed allocation plan the number of competitors in these areas will decline. At the same time, Telocator believes that effective competition will be enhanced, because the remaining competitors can compete with equivalent spectrum resources.

Telocator asserts that because AT&T has a substantial market share which dominates related fields and which faces competition from only relatively small companies, grant of a license to it would be functionally equivalent to an "acquisition" within the meaning of Section 7 of the Clayton Act. *FTC v. Proctor & Gamble Co.* is cited in support of this theory. In any event, the Commission is obliged to take antitrust considerations into account as part of the public interest standard.

Finding AT&T exclusion from cellular service desirable but unlikely as a practical matter, Telocator nevertheless urges that AT&T not be permitted to effectively preempt the market by constructing in all major markets and enjoying an assured wireline allocation. A limitation of seven to ten licenses in the thirty largest markets is proposed. In addition, Telocator proposes precluding AT&T's cellular operations from using the Bell logo or obtaining advertising discounts by participating in AT&T's mass advertising purchases. Telocator premises these two restrictions upon the monopoly ratepayers' payment for the logo and advertising.

Telocator alleges that substantially all of the Chicago developmental system and the Whippany, New Jersey, test bed have been financed through AT&T's license contract with its operating companies. This is a classic case of a monopoly entity cross-subsidizing a competitive development. Supported by documentation, Telocator asserts that the Commission faces a dilemma, in that since AT&T has already recovered these expenses from its monopoly service subscribers in fact, an amortization account charged against future revenues would be a purely fictional cost element and would serve only to insulate AT&T's actual profits from its misconduct.

Telocator proposes that in light of AT&T's alleged anticompetitive conduct, the Commission require AT&T to license its cellular technology on a royalty-free basis for a reasonable period of time or bar AT&T from obtaining cellular licenses. Since the public paid for the development, the technology should be conceived of as in the public domain.

With respect to technical standards, Telocator supports the Commission's stated intention to adopt only limited design criteria. It urges the Commission not to require an overly sophisticated design in start-up systems. Such systems should not be required to have actual capacity for frequency re-use or frequency hand-off between cells in advance of the need for cell-splitting. Specifically, Telocator proposes rules including:

- (a) a configuration of one or more base station transmitters and receivers designed to optimize economic and technical efficiency in serving the particular local market involved;
- (b) a demonstrated potential for orderly evolution, as traffic growth warrants, into a highly efficient small-cell configuration capable of handling a large number of subscribers within the allocated 40 MHz of spectrum and adjacent reserve bands;
- (c) compatibility with other cellular systems;

- (d) base station transmitters radiating no more radio frequency power than required to adequately cover the service area associated with that site;
- (f) a radio system fully interconnected with the public landline telephone network and capable of providing a transmission quality for voice messages comparable to that of the landline system;
- (g) narrow band frequency modulation for all voice channels in the radio system, with each channel not exceeding 30 kHz of authorized bandwidth; and
- (h) trunking of channels in service at each base station site.

In addition, Telocator favors discrete set-up channels for licensees, mandating that all mobiles have all-channel capability and making each system allocation open to any applicant.

Telocator finds no justification for preventing carriers from supplying and maintaining mobile equipment, urging, *inter alia*, that carrier provision increases consumer options. Unbundling of rate elements is unnecessary, because customers are now free to purchase mobile unit equipment. De-tariffing of mobile equipment might serve to mask the true magnitude of the mobile unit rate element.

Telocator opposes vertical integration of licensees and RF equipment suppliers. This opposition is based on a perceived history of anticompetitive conduct by private mobile equipment suppliers, and the conclusion that vertical integration does commonly lead to antitrust violations.

Telocator advocates lifting restrictions against carrier provision of fleet-call dispatch service. It is by no means certain that fleet-call dispatch will result in spectrum inefficiency, and suggests that FCC restrictions should be lifted to permit fleet call service development.

Telocator reserves judgment on the AT&T cellular resale proposal, noting that several RCCs have expressed interest in it. It notes, however, that the success of a resale form dependent upon a bulk rate discount is dependent on a discriminatory pricing scheme. It questions whether this is what the Commission has in mind. It suggests a "resale" model analogous to that of RCCs and paging service, in which entrepreneurs serve as marketing agents for RCCs.

Telocator opposes federal preemption of jurisdiction over entry. It argues that the commerce clause rationale for federal jurisdiction is absent, and that the requirement for nationwide compatibility provides no basis for any claim that interstate communications is involved. Telocator argues that states should be free to restrict the number of licenses per market below the FCC determination, because cellular is essentially a local service for local users. Furthermore, although the *NCUC v. FCC* cases provide for federal jurisdiction in instances of conflict between state and federal schemes, since there is no apparent such conflict there is no rational basis for preemption here.

While Telocator is opposed to the use of auctions or lotteries to select licensees from among competing applicants, it believes the comparative hearing process should be streamlined. Telocator favors relaxation of limits on the consideration that may be paid for settlement of contested proceedings. If there remain competing applications in some cases, the applications should be ranked in the order designating them for hearing; merits should be awarded for experience in providing mobile telephone service, experience in the market applied for, and state certification; demerits would be awarded to the local wireline telephone service provider, to providers of intercity voice transmission service to the market applied for, and to applicants with a history of anticompetitive conduct in mobile telephony.

Telocator includes appendixes containing mobile telephone and paging market data, a paper on the merits of permitting start-up cellular systems to operate without frequency

reuse or handoff involving frequency change, and a California Public Utilities Commission staff report documenting the funding of AT&T's cellular development through its license contracts with Bell operating companies.

Tippecanoe Communications Corp. (Tippecanoe)

Tippecanoe, a Specialized Mobile Radio operator, opposes allowing cellular systems to provide fleet-call dispatch service. To allow such service on cellular systems would forfeit SMR operators' market and potential for profits.

United States Independent Telephone Association (USITA)

USITA believes that the Commission's Final Decision in the *Second Computer Inquiry* should govern cellular service. Independent telephone companies should be permitted and encouraged to participate in the provision of cellular communications, which should be considered a basic service.

The Commission should also recognize that it is unlikely that independents would be able to cross-subsidize cellular service from local exchange service. Even if it were possible, however, local rates would be subject to state, not federal, regulation.

The Commission, in discussing the jurisdictional lines between state and federal regulatory bodies, confuses federal supremacy over radio licensing with its more limited Title II jurisdiction over common carriers. The Commission is empowered to prescribe rules leading toward nationwide compatibility and uniform technical standards, but there is no basis for broad federal preemption regarding cellular systems that would not have equal applicability to all local exchange service.

Applications for cellular systems must be judged on their merits under the public interest standard. A lottery system would be unwise and of questionable legality.

United Telephone System, Inc. (United)

United believes there should be at least two cellular licenses available in each market. The Commission should rely on competitive forces to encourage operating efficiency and technical innovation.

The public will benefit if wireline carriers are permitted to offer cellular service. Restrictions on the participation of wireline telephone companies should be adopted only if, after a detailed analysis of the direct and indirect costs and benefits of such restrictions, the Commission finds it necessary to address specific problems by restrictions reasonably related to those problems.

Even if wireline carriers were to have an incentive to limit the growth of cellular service, they could not do so if two or more licenses were granted in each area. If cellular technology becomes competitive with wireline distribution, a wireline carrier operating a cellular system in a competitive environment will lose customers to its competitor if it does not fully exploit the cellular system's potential.

The Commission should therefore rely on competition, not regulation, to encourage the exploitation of cellular technology. To alleviate any concerns about the integrity of the competitive marketplace, the Commission should apply the following conditions to the offering of cellular service: cellular operations must be separately accounted for; rates must be unbundled; carriers should be permitted to offer mobile equipment; and unreasonable restrictions on resale should be prohibited.

Utilities Telecommunications Council (UTC)

UTC is the national representative of the energy utilities eligible for licensing in the Power Radio Service. The energy utilities are unlikely to use cellular systems, preferring private radio systems for reasons of reliability and availability in emergency situations.

UTC supports the present allocations for cellular systems because many business-type

users may be attracted to them from the private bands, thereby freeing up private radio spectrum for those users needing to operate their own systems. UTC opposes the allocation of any reserve spectrum for cellular operation; all of this spectrum is needed to accommodate the projected spectrum needs of the private services. Before any additional spectrum is allocated for cellular operations, the proponents of cellular systems must demonstrate that it is in fact needed. Such a showing has not been made. In fact, the only reason for even considering the allocation of additional spectrum is the proposal to license more than one cellular licensee per market. In light of the spectrum needs of private radio users, it appears to UTC that the alleged benefits of having more than one carrier are more than counterbalanced by the spectrum inefficiency that will result. Cellular operation is the only place where economy of scale would dictate having only one carrier.

Consumers could receive the benefits of different, innovative technological approaches if these matters were considered in an expedited comparative hearing process. Further, it is unlikely that licensing more than one carrier in a market will shorten the licensing process.

UTC believes that cost differences between wireline telephone and cellular service will provide for little cross-elasticity between them. UTC also questions whether the Commission should consider using scarce spectrum to serve needs that can adequately be met by wire lines.

APPENDIX B: SUMMARY OF REPLY COMMENTS

AMST

In its reply comments, AMST emphasizes that the Commission's purpose in this proceeding is to meet the national need for mobile communications, not to reinvent cellular radio or wireline telephone service; nor is it to experiment with neo-classical economic theory in making spectrum assignments.

AMST urges the Commission to reject the argument that cellular systems should not be permitted to offer dispatch or fleet-call service. A cellular service limited to mobile telephone would not alleviate the overcrowding of the existing land mobile bands and would lead to future allocations for dispatch service. Large fleet-call users, such as API's and UTC's members, are likely to operate private systems whether or not fleet calling is prohibited on cellular systems. Some smaller users may find cellular an attractive alternative to operating their own systems. There is no reason for denying a small business the option of obtaining fleet-call service from a cellular carrier.

AMST reiterates its opposition to the so-called "unlimited entry" plan. Such a plan would result in trunking inefficiencies, higher costs, and lower quality.

Cellular service's primary purpose is to serve mobile communication needs. Because of spectrum limitations it is unlikely to meaningfully substitute for landline telephone service. AMST does not believe the Commission should base its policies for cellular on competition between cellular and wireline, the likelihood of which is only conjectural.

AMST also believes the Commission should not prohibit wireline carriers from offering cellular service in their franchised service areas. The arguments for such restrictions are based on the hypothetical supposition that cellular systems may at some future time have the potential to compete with landline service. The Commission should also consider the fact that wireline participation would lead to more rapid implementation of cellular service.

AT&T

AT&T is cognizant of the difficulty in developing a plan that will satisfy the myriad of conflicting interests in this proceeding. Its split frequency plan will not accommodate all

interests, but it is the best method for introducing cellular service without delay while maximizing competition.

There is little disagreement that cellular service will compete with conventional mobile telephone service and relieve the congestion that has developed in that service. AT&T agrees with NTIA that cellular should be able, also, to compete in the market for dispatch service; while private dispatch systems will continue to be preferred by major segments of the market, the marketplace should determine the extent to which cellular systems are able to provide dispatch service.

AT&T notes that most commenters have agreed that cellular systems would not be an effective substitute for wireline service. AT&T takes issue with Telocator's claim that wireline carriers will have an incentive to cause a disparity between the rates for cellular and wireline service to the advantage of wireline service; the argument is flawed because there will be no significant cross-elasticity between those services, there will be competition between two cellular carriers forcing rates down, and wireline carriers would offer cellular service through separate operating entities. AT&T also questions the usefulness of Telocator's market share data.

Most commenters have supported the concept of two 20 MHz cellular systems per market. Such an approach will satisfy the concerns regarding anticompetitive effects expressed by the Court of Appeals. A single system per market, as advocated by E.F. Johnson, Motorola, Millicom, and UTC, fails to recognize the benefits of competition in the provision of service. Motorola's position—that the total capacity for cellular systems should be severely contracted and that there should be but one carrier per market—appears to be motivated by an intention to restrict the growth of common carrier systems and promote private systems. AT&T criticizes Motorola's projections of demand for common carrier systems as unreasonably low and takes issue with Motorola's cost projections for cellular systems.

The unlimited entry concept supported by several commenters disregards the technical and economic realities of cellular technology. It would require a corresponding unlimited amount of spectrum to become workable. A test of unlimited entry in a test market, as proposed by the Justice Department, would simply delay the delivery of cellular services to that market and be wasteful of spectrum.

The most critical issue in this proceeding is the role of wireline carriers. Restrictive policies would seriously jeopardize the viability of the Commission's plans for cellular service. In addition, unless the Commission authorizes a split frequency arrangement, the prospects for widespread cellular implementation are remote. The split frequency plan, which is consistent with previous Commission policies, provides for a highly competitive market structure when combined with provision for resale.

In view of the likelihood that cellular systems will not be highly competitive with landline systems, there is little reason to place restrictive conditions on wireline participation. Limiting the number of markets in which AT&T could compete would not necessarily be procompetitive and could result in depriving the public of cellular service and hinder the progress of cellular technology. Proposals to bar wireline carriers from providing their franchised service areas with cellular service would effectively preclude AT&T from the nation's major cities and jeopardize the prompt availability of cellular service there. Such proposals ignore AT&T's pioneering role in cellular service; AT&T has no incentive to inhibit the growth of cellular service.

LIN's proposal to require joint construction by the two cellular licensees in one area is fraught with legal and practical problems. AT&T's resale proposal is intended to make participation in cellular service possible for those companies, such as LIN, that wish to avoid high-risk ventures.

AT&T opposes the exclusion of wireline carriers from supplying and maintaining mobile units or the imposition of separation requirements in such situations. Safeguards

such as accounting procedures and cost-based pricing will be sufficient to prevent cross-subsidization. Furthermore, contrary to Motorola's position, AT&T believes that supply and maintenance of cellular mobile equipment is fully permissible under the consent decree. AT&T further believes that cellular carriers should be permitted to manufacture mobile units. Western Electric pricing and costing systems are extensively scrutinized to assure cost-based prices.

AT&T opposes the forced licensing of technology. Even more unrealistic is Telocator's proposal that AT&T be required to share its technology at no charge. Cellular research funding has been handled as all AT&T research. To adopt a policy of requiring technology licensing would reduce marketing incentives.

AT&T agrees with Telocator, NTIA, and others that fleet-call dispatch should be permitted on cellular systems. Those who seek to ban fleet-call dispatch are primarily private radio operators or equipment manufacturers. There is no valid reason why cellular operators ought not to be able to compete for the provision of fleet-call service. The marketplace should decide whether cellular systems can efficiently provide dispatch service.

Millicom and Motorola offer optimistic projections of the use of portable, rather than vehicular mobile, telephones in cellular systems. Neither party has supported its claims, however; nor have they justified their demand that all cellular systems be able to serve portables. Accommodation of portables should be a matter left to market forces.

AT&T notes that resale of cellular service was supported by all commenters addressing it but Motorola. AT&T adds that under the Commission's *Resale and Shared Use* decision, underlying carriers would not be precluded from competing at the retail level. AT&T sees no basis for Motorola's position that resale is no substitute for competition, as it enhances competition.

Regarding the treatment of competing applications, AT&T generally supports NTIA's suggested approach, under which the Commission would select licensees based upon the pleadings, with hearings on only the particular factual issues in dispute. AT&T reiterates its belief that auctions and lotteries are not consistent with the Act.

There is a general consensus supporting the Commission's intention to require nationwide compatibility among cellular systems. There is also agreement that sharing of setup channels is undesirable. While mobile units, ideally, should be capable of operating over 60 MHz, there may be cost penalties involved. AT&T's proposal would permit use of either 40 or 60 MHz mobiles, so the cost penalty issue need not be resolved. AT&T supports the concept of industry-developed interface criteria. The EIA working paper should form a basis for type acceptance, thereby making it unnecessary to include voluminous specifications in the rules.

The Commission should not adopt standardized propagation criteria as a basis for determining service areas and performing interference analysis. Rather, the Commission should rely on frequency coordination by applicants and licensees.

AT&T opposes Motorola's suggestion that the Commission adopt regulations specifying frequency reuse, cell-splitting, cell-site layout, accommodation of portables, grade of service, traffic engineering, and system growth. These are direct determinants of service quality, which should, in a competitive service, be left to market forces. Furthermore, it is unnecessary to establish separate standards for cellular-compatible systems at this time.

NASA, GE, and COMSAT, in their comments, urged the Commission to take no steps that would preclude the use of the 806-890 MHz band for mobile-satellite service. The Commission, says AT&T, should not impose restraints on terrestrial cellular systems in anticipation of potential developments in the mobile-satellite field. A mobile-satellite system should, if developed, be designed so as to be compatible with terrestrial systems. That would be consistent with the Commission's limited support for a mobile-satellite

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service as an adjunct to terrestrial mobile service, expressed in its *Report and Order* in Docket 20271, preparing for the 1979 World Administrative Radio Conference.

In considering spectrum allocations, the Commission should rely on AT&T's market projections, which are based on statistics from the Chicago developmental market test, and not on market forecasts submitted by Telocator and Motorola. Motorola's projections are based on sales data from other services; Telocator's are based on usage of existing non-cellular radio services. These bases are not valid grounds for projecting the cellular market.

AT&T reiterates its belief that a 60 MHz allocation is necessary and cost-justified. Motorola's assertions as to the costs for cellular systems in various allocations are premised on the exclusion of many frequency-sensitive factors. Motorola's claim that most markets will never need even 20 MHz is further flawed in that it assumes that cell sites and demand are perfectly distributed; however, traffic density is non-uniform. By more accurately depicting traffic distribution it can be seen that many markets will require frequency reuse in a 20 MHz allocation.

Arguments that the 20 MHz of adjacent reserve should not be allocated for cellular are unpersuasive and reflect a protectionist attitude toward existing services. The economics of cellular technology will eventually require the full 20 MHz of reserve.

AT&T disagrees with NECA's proposal to utilize reserve spectrum for developmental, "alternative," cellular systems. Splitting the reserve between developmental systems and growth of "original" cellular systems will delay the availability of cellular service.

Broad Com

Broad Com believes the Commission should adopt cellular rules that provide a framework for competition, insure that no company can dominate the service, and provide an open door to new and emerging technology. To this end, the Commission should follow the recommendations in Broad Com's comments.

AT&T has been developing its proposals for cellular systems for many years at high cost. It wants others, such as Broad Com and Millicom, to follow the same route, and suggest changes in the technical rules only after developmental testing. Surely this is not an open door to new technology and is not in the public interest.

AT&T complains of not having sufficient information to analyze Broad Com's proposals. The presentation "Cellular Radio and Spectrum Management," submitted by Broad Com, compares the SYNAPZ concept to AT&T's cellular system. The bottom line is that SYNAPZ will provide 42 times the services as the AT&T system. Broad Com expects to submit developmental applications for SYNAPZ shortly.

Centel

Several parties have argued that wireline telephone companies may attempt to inhibit the growth of cellular, because cellular service may be competitive with local exchange service. Centel strongly disagrees. Cross-elasticity of demand between wireline and cellular services, if it exists, does not necessarily lead to the conclusion that wireline carriers have incentives to hinder cellular. It would be a mistake for a wireline carrier to ignore the potential of cellular technology; the failure to offer cellular service (or to be able to offer it due to Commission policies) would be a handicap to a wireline carrier.

Centel notes that some commenters have asked the Commission to place an outright prohibition on certain forms of wireline carrier participation in cellular. This is anticompetitive and will penalize the consumer. In fact many RCOs are at least as large as most non-Bell wireline carriers, and have equal potential for cross-subsidization. Centel opposes any restrictions on wireline carriers beyond accounting safeguards or, if necessary, a separate subsidiary requirement.

Continental

Continental notes that nearly all parties share its view that the Commission should encourage the rapid development of commercial cellular systems, and that competition should be encouraged in the provision and resale of service. The few commenters urging a one-to-a-market policy do not present any compelling reasons.

Several parties have proposed restrictions on market entry within a two-carrier-per-market system. Continental sees no reason to limit participation in any one market to one wireline carrier and one RCC, as suggested by AT&T. Similarly, there is no merit in the various proposals to limit the number of markets a carrier can serve.

Continental opposes any restriction on wireline carrier participation, such as limiting the markets where they can offer service or imposing a separate subsidiary requirement.

Continental also opposes federal preemption. Concurrent federal/state jurisdiction is needed to ensure adequate service to rural areas.

E. F. Johnson

Johnson states that the issues under consideration in this proceeding can be categorized as either (1) needing immediate resolution because of their direct bearing on the character of the system design, or (2) not needing resolution at this time because they deal with speculative circumstances.

In this proceeding the Commission must make a determination with regard to its policies on competitive systems in a market, eligibility, equipment sources, retail sale of service and equipment, and technical standards. The Commission need not reach the questions of market definition, dispatch service, and additional spectrum allocation.

Johnson believes that there will be little or no competition resulting from a dual allocation. There may, however, be cost penalties because of the loss of integration. True competition will exist on the retail level in the provision of equipment and resale of service. Wireline carriers should be precluded from manufacturing the base station or mobile station radio equipment, in order to insure the existence of competition in those markets. Johnson supports the adoption of uniform technical compatibility standards.

GE

In the comments received in this proceeding, GE's position on many issues found strong endorsement. Many parties emphasized the need to exclude the provision and maintenance of cellular mobile equipment from regulation. Many also joined GE in urging measures to ensure broadly based competition at the local and national level. The weight of comment was that if wireline carriers are to be permitted to provide cellular service, they should be afforded no preferential status in any Commission licensing process. Moreover, strict safeguards—including maximum separation requirements and a bar to such carriers providing cellular service within their exchange areas—were agreed by most parties to be essential for a competitive environment.

It is vital that the Commission not lose sight of its fundamental mission—to assure communications services to the entirety of the United States. And in the face of pressures to immediately take favorable action on AT&T's proposal for terrestrial-based cellular services in the 35 largest urban markets, the Commission must bear clearly in mind its obligation, not only to attend urban communications requirements, but to meet as well the needs of the more sparsely populated areas of rural and suburban America which occupy some 80% of the land area in this country.

In this proceeding, the Commission has an unprecedented opportunity to establish a truly universal communications capability—one which can serve urban and rural needs. As indicated in the initial NASA and GE comments, and as further demonstrated in GE's reply, a truly nationwide cellular service can be accomplished through an integration of both terrestrial and communications satellite capabilities. While terrestrial system

design of the sort proposed by AT&T and others may be feasible for more densely populated areas, satellite capabilities appear to be the only effective means by which cellular services can be provided to non-urban areas. Based on extensive tests and studies conducted by GE—one of which is detailed in GE's reply—satellites can provide cellular services on a cost-effective basis to the vast areas of this country which are sparsely populated. And it is also now clear that satellite and terrestrial components can be integrated into a unitary nationwide cellular network.

The problem, however, is that the Commission has not yet developed adequate information in that regard. Even more potentially serious, the Commission is being urged to immediately establish frequency allocations, and to approve cellular system designs and standards, which may preclude a later incorporation of satellite technology and usage. It now faces demands from some which, if acquiesced in, would effectively foreclose satellite augmentation of terrestrial facilities even if the Commission were subsequently to determine that such a course would be publicly beneficial.

While the Commission's avowed purpose is to develop a nationwide cellular service, a truly universal cellular service is unlikely to eventuate if long-term decisions herein fail adequately to provide for incorporating satellite capabilities into any national cellular system. GE has outlined the considerations to which the Commission should address itself. Moreover, GE has urged the immediate formation of a technical advisory committee, comprised of business and governmental interests, to develop recommendations on both frequency allocations and operational standards for a combined terrestrial/satellite network.

GE is keenly aware of the lengthy history of Commission efforts concerning cellular services, and of the Commission's announced desire for expedition in this proceeding. GE shares the Commission's belief that the benefits of truly nationwide cellular services should be made available to the public at the earliest possible time. But the Commission should not permit itself to be stampeded into premature action. For the sweeping consequences of this proceeding are such that final Commission judgments must be reached on the most carefully developed, and fully informed, basis. It is vital that the Commission have all pertinent considerations in mind—that it not be lacking important facts—when it makes its determinations. For if important elements are missing, long-term decisions made in their absence may well defeat the very objectives which the Commission seeks to achieve. GE does not here contend for arbitrary delay. Rather, it urges an expedited, constructive next step in the development of important long-term policy.

GE urges the Commission to exhibit caution in determining the scope of cellular service offerings. For example, not only fleet-call, but all private dispatch services should be prohibited on cellular systems. In an appendix, GE responds to NTIA's argument that fleet calling would not necessarily greatly diminish the efficiency of a cellular system, noting that fleet calls must be set up on a cellular system in a time-consuming serial manner and the cellular system's signaling channels would experience heavy loading, causing inefficiency. GE also opposes the premature imposition of complex system design requirements; for example, the Commission should not require all systems to accommodate portables.

Interagency Committee on Search and Rescue (ISCAR)

ISCAR supports NASA's comments regarding the need for mobile-satellite service. Capabilities do not presently exist in either government or private sectors that meet the needs of emergency response communications. Mobile-satellite allocations in the 806-890 MHz band approved in the 1979 World Administrative Radio Conference could make it possible to achieve quality search-and-rescue and emergency-response communications.

Jubon

Jubon believes, upon reviewing the comments, that there are three areas requiring

emphasis. First, there is an immediate need for adoption of a standard for signaling and control. The Bell/Motorola/EIA system should be adopted, as it is field-proven and unlikely to become obsolete.

Second, Jubon urges us to establish the market configuration as two carriers per market, with a 60 MHz total allocation, 15 MHz to be initially assigned each carrier. The Commission should address how the two systems must relate to each other with regard to roamers.

Finally, Jubon reiterates the need for a continuation of the developmental period. Many aspects of cellular mobile telephony have not yet been addressed in a developmental system. Some of these areas are: tariffing user services; tariffing telephone network access to and from cellular systems; equitable traffic and revenue interchange with the telephone network; small and medium market configurations; national interoperability of systems; and two-per-market configurations. Therefore, Jubon proposes that the developmental period be extended for four years.

United States Department of Justice (Justice or DOJ)

Justice believes cellular communications is an efficient means for meeting the present and potential demands of a part of the communications market. Because cellular may have the potential to provide services which are substitutes for wireline telephone exchange service, at least in some markets, basic exchange service should be included in the cellular market definition. Otherwise, telephone company incentives to retard cellular development will be ignored.

A flexible entry policy should be adopted, without a specific limit such as two per market. It would be blatantly anticompetitive for the Commission to automatically assign one license in a two carrier cellular market to the local wireline telephone company. No reason exists why telephone companies should be given this preferential position, especially since wireline carriers have every incentive to inhibit the development of cellular technology.

Because the evidence of the appropriate number of entrants is unclear, a flexible licensing scheme is favored. Perhaps initial allocations of 5 or 10 MHz per system could be made, which might encourage spectrum efficiency and technological innovation. Furthermore, it would enable the FCC to independently gather data on appropriate allocation methods. Should a marketplace test show that an area can sustain more than two systems, additional entrants should be allowed.

Because telephone companies have the incentive to hinder cellular development, they should be precluded from owning cellular systems within their service area. Furthermore, the ability of wireline carriers to cross-subsidize and allocate cellular costs to the monopoly rate base will afford them an unfair competitive advantage. DOJ asserts that even the creation of a separate cellular subsidiary will likely have a *de minimis* impact on removing incentives to the exercise of market power or significantly alleviate anti-competitive potentials. In addition, as long as there are any joint costs of cellular and local telephone exchange services (or costs incurred by the parent to provide joint services to its affiliates) it is virtually impossible to insure the appropriate allocation of costs to the affiliates and the parent.

DOJ rejects claims that wireline carriers should be permitted to provide cellular services because they are able to do so more efficiently than other entities. If such an advantage in efficiency were to exist, it could only result from precisely the joint product nature of the services that separate subsidiaries are supposed to prevent. The existence of such an advantage is doubtful, however, in view of the vast number of firms that have demonstrated their willingness and ability to offer cellular services. For these reasons, DOJ urges exclusion of wireline carriers from provision of cellular service within their service areas.

Justice is opposed to a separate allocation for wireline carriers. This would confer an

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unearned advantage on wireline carriers, and it would eliminate their incentives to behave in a competitive and innovative manner. DOJ also notes that should cellular service not be tariffed, provision of cellular service by AT&T would contravene the 1956 *Western Electric Consent Decree*.

DOJ approves of restricting the number of licenses a firm may hold; this would promote technological innovation by increasing the number of entrants and make possible "yardstick" competition. But because of the possible loss of joint management efficiencies, resulting from such a limit, the FCC should defer a conclusion on a limit to system ownership at this time.

Justice favors a streamlining of comparative application procedures through the rulemaking process. Although auctions are the most efficient allocator of licenses, and Justice supports exploration of the auction alternative in a separate proceeding, the legal uncertainties regarding auctions under the present Act argue against their use at this time. Instead, DOJ favors a random selection process among applicants found equally qualified.

There is no need to apply regulation to a competitive market like equipment supply and maintenance, where a number of vendors are ready to serve the market. The Commission should continue to proscribe cellular licensee manufacture of equipment, however, because with limited entry comes the incentive of service providers to cross-subsidize equipment manufacture from protected monopoly revenues.

To the fullest extent possible, the market should determine the degree to which system compatibility and technological sophistication is required.

Federal certification preemption is supported because it will insure that entry and exit requirements for the business of providing cellular radio services are deregulated to the maximum extent practical.

Kidd and RCC of Virginia

Kidd and RVI have submitted joint reply comments consisting of a statement by their engineering consultant, Jan David Jubon, P.E., in response to the comments of Millicom. (Jubon has also filed his own separate comments and reply comments). Jubon criticizes Millicom for presenting little technical substance in support of its proposal, which consists primarily of a marketing development paper. Several of Millicom's underlying assumptions are questioned.

Millicom's system concept, applied to Bakersfield, California, where Kidd has proposed to construct a developmental system, would result in a system costing five times as much to construct as Kidd's proposal; it would require many more subscribers to break even and would likely cost more per month to each user. Further, Millicom's belief that radiotelephone would replace wireline to the degree necessary to support a Millicom system is foolish. Millicom's projections of the cost of a handheld portable unit are also suspect; the ultimate cost to the consumer would not be comparable to that of a wireline subscriber telephone instrument.

Millicom's assertion that dynamic channel reassignment between cells (channel borrowing) is essential to efficient utilization of a 40 MHz allocation has been rebutted in recent technical papers. In any event, the service algorithm of a cellular system must be custom-tailored to the particular market in which it operates. Millicom's belief that neither the FCC nor industry groups should specify interface standards is not pragmatic. Jubon notes that Millicom has relied heavily on interface standards developed by industry groups.

Millicom's proposal to use 25 kHz channel spacing does not adequately address issues of necessary bandwidth or adjacent channel allocation criteria; the use of Millicom's channel spacing could result in difficulties in using adjacent and second adjacent channels at the same or adjacent locations.

The Network Control Switch that Millicom states can handle 150,000 cellular subscribers is questionable. It is by no means clear that even the largest electronic telephone exchange switch, the Western Electric ESS-1A, could handle that number of subscribers and still have adequate capacity for cellular hand-off and control.

It is not clear how Millicom expects to operate a cellular system with only one active transmitter per cell-site, as it proposed in its developmental application. Finally, Millicom's parallel licensing mechanism and switch sharing proposal are of questionable value.

LIN Broadcasting

LIN reiterates its belief that initial operation of cellular systems on a joint venture basis would result in the early establishment of cellular competition. LIN notes that most commenters support competition in the provision of cellular service. Primary among the commenters opposing the establishment of competing cellular systems is Motorola. LIN disagrees with Motorola's assumptions about the amount of spectrum needed; in any event, the Commission should not turn its back on the benefits of competition simply to pursue speculative spectrum efficiency. The Commission must act advisedly to encourage the entry of competing carriers by reducing the risk to entrants; this can best be accomplished through LIN's joint-venture market structure proposal.

LIN opposes AT&T's "split-frequency" plan, which would give wireline carriers the extraordinary advantage of an exclusive frequency band in addition to their existing competitive advantages. The primary purpose of this plan—the speedy initiation of service—could be achieved as well by selecting any qualified applicant for the exclusive band.

LIN reiterates its support of using a lottery to select between mutually exclusive applicants. Section 309 does not preclude the Commission from finding that each of several applicants could provide the "best possible" service and select from them by lot.

Metro Mobile

Metro Mobile urges the Commission to extend the period for cellular development because of the limited nature of the practical operating experience in cellular developmental systems to date. Questions to be addressed in future developmental systems include treatment of roamers, tariffing and separations, automatic traffic interchange, and small-and-medium market operators.

Millicom

The full competitive potential of cellular radio alternatives can only be realized by relying to a large extent on marketplace forces in lieu of regulatory intervention. Regulation which establishes a monopoly or oligopoly for the provision of cellular service will impede the development and limit the deployment of cellular technology. In its reply, Millicom suggests a non-exclusive licensing policy within an overall regulatory framework. This proposal, somewhat different from that presented in Millicom's comments, will expedite the provision of cellular service to the general public.

Under Millicom's revised proposal, no rules should be adopted which prevent the offering of cellular portable service to the general public at affordable rates. Cellular service is currently a potential competitor to local wireline distribution facilities in many rural and suburban communities and will, in the foreseeable future, become cost-competitive with such facilities in all but the most densely populated areas.

The public interest in encouraging innovative and competitive alternatives to existing wireline local distribution facilities requires the exclusion of existing wireline carriers from the provision of cellular service in their franchised service areas, except in certain rural areas. The AT&T proposal for separate WCC/RCC allocations is blatantly anticompetitive and unnecessary for the rapid deployment of cellular service. The

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Commission need not require the separation of equipment manufacturing from service provision where licensees do not have access to a monopoly rate base.

The granting of exclusive and therefore competitively unassailable franchises to one or two licensees in a market is inconsistent with the Commission's intention to rapidly deploy cellular service in a manner which encourages innovation and competition and minimizes regulatory intervention. The Commission should grant non-exclusive licenses for the use of the full 40 MHz in any market to all applicants, provided system construction begins within 90 days and is completed within three years. In any market in which more than one system is constructed, all systems must be designed to seize only unoccupied channels for operation. This framework is similar to the Commission's approach in Docket 21039.

The Commission should preempt conflicting state regulation of cellular service. Mandating detailed technical standards is both unnecessary and potentially detrimental to innovation at this early stage of cellular development. The existing 40 MHz cellular service allocation should be maintained but not expanded at this time.

Millicom agrees with the Commission's intention not to permit restrictions on resale of cellular service, but does not believe resale has a great deal of potential as a regulatory device in this service.

All base station and subscriber equipment should be capable of operating on the full 40 MHz allocation, using 25 kHz channel spacing. Furthermore, all cellular systems should be capable of accommodating portable as well as mobile radio telephones.

Motorola

In its reply comments Motorola reiterates its basic position as set out in its comments. The cellular allocation should be only 20 MHz, because most cities will not require even that much, while even the largest cities will be able to receive adequate mobile telephone service in a 20 MHz allocation through frequency reuse. Cellular systems should be oriented toward hand-held portable subscriber units, because the public will demand portable radiotelephone service.

Motorola believes cellular systems should be limited to providing mobile and portable telephone service, not dispatch-type service. Cellular operators should not be permitted to compete in the manufacture, sale, lease, or maintenance of subscriber equipment. Cellular service should be provided only through a local (or state-level), fully separated subsidiary. There should not be competition in providing cellular service within a single market, as such competition would be illusory; rather, there should be as many entities as possible nationwide.

The Commission should not permit cellular systems to provide private dispatch service, including fleet calls. To do so would place private users under rate regulation. It would also undercut the trunked SMR concept, intended to allow entrepreneurs to provide private dispatch service on an unregulated, competitive basis. It would also impair the efficiency of cellular systems for providing interconnected telephone service.

Motorola opposes the diversion of spectrum from the cellular allocation to mobile-satellite service. The need for satellite service is speculative; low-density areas can likely be served by small (single-cell) cellular systems.

In an appendix, Motorola discusses the various market forecasts presented in the comments. Motorola believes a conservative projection of the potential market for cellular, based on current mobile telephone user groups and penetration factors, is most appropriate. Such a projection results in a national market of 1,400,000 users by the end of the century, and 300,000 initially.

Motorola also argues for a 20 MHz allocation rather than 40 or 60 MHz. The cost of a mobile unit will be higher if it must cover a wider band, although the per-subscriber cost

of fixed equipment will be lower. The total revenue requirement per subscriber in a major market system will be \$102.32 if there is a single 20 MHz carrier, \$103.91 if there are two 20 MHz carriers, and \$107.51 if there are two 30 MHz carriers. Motorola also makes projections of the total additional cost of a larger allocation.

In regard to fleet-call dispatch, Motorola argues that combining dispatch and mobile telephone in a single system necessarily reduces efficiency. There have been no technological developments to change this fact. To leave the issue of fleet-call dispatch on cellular systems to the marketplace, as NTIA has suggested, would be contrary to the Commission's responsibilities.

NASA

NASA requests that the rulemaking in this and related dockets not foreclose the option of extending land and maritime mobile communications through the use of a satellite system. The satellite system would serve, and in some cases interconnect, both cellular-mobile telephone and conventional/trunked dispatch systems serving public and private sector needs. The retention of a satellite option does not delay the installation of terrestrial cellular mobile telephone systems in those areas that can economically support them. The comments that have been filed indicate that there is sufficient spectrum to allow for substantial growth of these systems during the years that the satellite segment would be tested. The proposed extension and possible nationwide integration of mobile communications would be compatible with the institutional and economic structure of the industry that is advocated in the majority of the comments on file.

Satellite requirements are compatible with the prompt implementation of commercial cellular mobile telephone operations and are as follows:

- a total of 20 MHz within the 806-890 MHz band should remain in reserve and be available for satellite;
- the projected market demand for mobile service outside major metropolitan areas indicates a need for at least 20 MHz of bandwidth for satellite-augmented communications;
- the cellular and the reserve allocations should be repositioned so that the reserve allocations are consolidated into two 10 MHz segments, separated by 45 MHz;
- the best location for the reserve allocation is between the Private Radio and the cellular system allocation at 821-831 MHz and 866-876 MHz; and
- the proposed Canadian/US experimental mobile satellite would be located within the center of a pair of reserve bands, beginning in the mid-1980's, with the uplink in the 821-831 MHz band and the downlink in the 866-876 MHz or 876-886 MHz band. The assignment of fixed and permanent boundaries between the Private Radio, reserve, and cellular system allocations is not desirable at this time. Flexibility to adjust the uses of these services to traffic demands that are different in various regulations and which may vary over time should be retained. The use of cellular technology for dispatch communications is compatible with the extension of cellular communications via satellite. Users of the satellite portion of the system will in any case require both dispatch and telephone communications.

NASA draws several further conclusions from the comments filed in this proceeding. The market forecasts for mobile telephone service suggest a large demand in non-metropolitan areas. A satellite is believed to have cost/performance advantages in such areas. The revenues to be generated should be sufficient to provide a commercially acceptable return on investment that would support an investment in the satellite facilities of between \$100 million and \$500 million in 1980 U.S. dollars.

The extension of mobile communications to a nationwide scale by the use of satellites does not preclude any of the alternative approaches to licensing, marketing, and

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competition that have been put forth in the comments. On the contrary, in line with the Commission desire to promote competition and multiple licensing, the availability of satellite facilities increases its ability to do so. Satellites, with separate beams unaffected by terrain or distance, and channels divisible and reassignable over sizable areas, offer opportunities for great flexibility in arrangements for ownership, lease, resale, without regard to applicant resources or geographic location.

In support of its position, NASA examines the various forecasts of the mobile telephone market submitted in this proceeding and concludes that there will be a potential demand for about 1,000,000 mobile telephones in non-metropolitan areas in the 1990's. Satellite users would comprise a portion of these and a larger number of private land mobile users, the total being 300,000 to 500,000 mobile-satellite users. NASA urges the Commission not to preclude the use of two 10 MHz blocks in the 800 MHz band to serve these users.

NABER

NABER's reply is in response to the comments of NTIA. NTIA argued that even if cellular systems are inefficient in providing fleet-call dispatch service they should be permitted to render it, so that the marketplace would be able to determine the users to which cellular systems are put. NABER restates its vigorous opposition to the use of fleet calling on cellular systems. In view of the fact that fleet-call dispatch users can be accommodated more efficiently on conventional or trunked private systems, there is no basis for allowing cellular systems to provide the service. NTIA's proposal would change the basic reasoning underlying Docket 18262 by implementing marketplace judgments that would allow the user to choose to pay a high charge for an inefficient use of the spectrum.

NARUC

NARUC asks the Commission to recognize that the fears of state regulation expressed in some comments prove to be lacking in substance. The belief that state policies would hamper competition is plainly wrong-headed: the states have been ready and willing to certify competing systems in the existing mobile services. Regulatory delay is unlikely to be a problem, either.

State jurisdiction over entry is justified by the local nature of the service; market conditions will vary from place to place. NARUC maintains that federal preemption is likely to result in more delays in licensing or in franchises chosen by chance rather than their fitness to serve an area.

None of the advocates of preemption has provided a sound legal basis for it. Where cellular services are used in local and intrastate communications, the states have regulatory jurisdiction.

NTIA

NTIA reaffirms the position taken in its original comments. Many differences exist in the market forecasts submitted by the participants in this proceeding; it is neither necessary nor possible to resolve the nature and dimensions of likely future demand with precision, however, and the absence of conclusive data need not delay the introduction of cellular service.

NECA America

The NECA comments set forth the proposition that a portion of the allocable cellular spectrum should be earmarked for the development of alternative cellular systems. Numerous parties supported continued development.

NECA is not seeking to have the Commission adopt its alternative; rather, it is willing to compete with the proponents of other alternative systems. NECA stresses the need for flexibility, in order to preserve the Commission's options for the future. NECA believes

one area in which its approach may have significant benefits is in serving small and medium markets. It may not be necessary to have nationwide compatibility, because local service is a major aspect of any cellular system.

NECA believes the Commission would be justified in utilizing 30 kHz, rather than 25 kHz, channel spacing. The selection of 25 kHz spacing would undermine a great deal of the developmental work to date. The NECA proposal for alternative cellular system development would permit 25 kHz cellular system testing by the proponents of such systems, however.

NECA's proposal would permit rapid implementation of cellular mobile technology while not foreclosing the development of new, more efficient technologies.

Arthur K. Peters (Peters)

The firms of Arthur K. Peters, Consulting Engineers, filed reply comments to address a number of issues it believes have been insufficiently addressed in the comments. It is Peters' contention that none of the cellular technology being heralded today represents final optimization of costs or spectrum.

Peters opposes the adoption of technical standards at this time because of the newness of the technology. More data is needed before a comprehensive set of standards can be created. The EIA working draft would not insure compatibility, because it does not define an entire system or its operating characteristics; rather, it merely ensures that a mobile can communicate with a base station, and *vice versa*.

Many of Peters' clients doubt that nationwide compatibility is desirable, because it could limit system versatility. Further, most mobile communication needs are local in nature; wide area or nationwide compatibility will arise in response to market forces if there is a demand for it. Cellular development through market forces may proceed more slowly than it would under regulations and standards, and it may also be more costly; there will be spectrum efficiency gains, however.

Cellular technology is still in its infancy; standardization would be premature. Many developed nations have or are considering cellular systems using 25 kHz channel spacing. Only the United States is considering any other spacing. Foreign spacing considerations militate against adoption of standards specifying 30 kHz spacing. Operating at a different standard from other countries will restrict the market for U.S.-manufactured units.

Adoption of the signaling standards used in the AT&T system, including a 10,000 bps digital signaling rate, will result in a slightly costlier subscriber unit than if slower rates can be used; it will also require more base stations with smaller service areas, in order to achieve required signal quality. A lower rate would be more suited to lower-capacity systems and larger geographic areas. For these reasons the Commission should not adopt technical standards. Peters believes the greatest potential for cellular technology revolves around the concept of a portable telephone. It would be premature to adopt rigid standardization because little is known about the cost or technological necessities for implementing portable service.

Consumers should be free to move among alternative offerings. To encourage consumer choice, the Commission should not, at this time, limit the number of market entrants. Totally unrestricted market entry could lead to an inefficient fragmentation of the spectrum, however. Thus, a compromise is necessary between pure competition and monopoly. Market entry and exit should be reviewed by the FCC, which must determine how many market entrants will be allowed versus the effects on spectrum utilization, while protecting existing licensees.

We do not now know how many licensees should be permitted in a given market; nor do we know how much spectrum should be allocated to each. The spectrum requirements discussed in the comments represent desirable, as opposed to mandatory, allocations.

Because of trunking efficiencies, the "ideal" system would be a monopoly, with access to all channels. In a competitive cellular environment, each competing system in a market should have access to all channels on a first-come, first served basis.

In assigning spectrum the needs of the market should be considered in determining whether to accept or reject an application. Channel assignments should be designed so as to assure applicants of future growth capability and should be reassessed every five years.

Rochester Telephone

Rochester opposes the Justice Department's suggestion that wireline telephone companies be precluded from providing cellular service within their exchange areas. DOJ's position would make it unlikely that smaller telephone companies would be able to participate in cellular service. There are adequate remedies for Justice's concerns about discrimination in interconnection, under state public utility laws and the antitrust laws.

Rochester reemphasizes the need to have a flexible number of entrants. It believes, however, that rules must be set before any auctions or lotteries are employed.

SPCC

SPCC is encouraged to see that its position on the use of cellular systems as an alternative mode of local distribution has strong support. Cellular is at the very least a potential competitor with wireline distribution, and is not merely a new generation mobile telephone.

AT&T, in discussing the use of cellular systems, for other than mobile purposes, says the primary constraint for the "average" customer is cost. Users of cellular systems will not be "average", however, and may be willing to pay for the convenience of portable service. SPCC cautions the Commission against developing restrictive policies for cellular systems. The FCC's policies should not limit cellular systems to traditional mobile services and should include only the minimum technical standards necessary. At least two competing systems should be authorized per area. Measures should be taken to prevent anticompetitive effects due to the participation of wireline carriers.

SPCC opposes AT&T's proposal to ensure availability of frequencies for wireline carriers, and it opposes Motorola's one-per-market concept. These proposals would have a fatal effect on competition.

Telocator

Telocator, in its reply comments, responded to the comments of several parties in respect to a number of issues. Regarding the establishment of competing systems in a market, Telocator reiterates its position that up to two systems per market should be licensed. It opposes the suggestion of AT&T that if only 40 MHz are allocated, there should be one 40 MHz rather than two 20 MHz systems; AT&T did not disclose the assumptions underlying its conclusion that a 40 MHz system would be less costly.

Telocator strenuously opposes Motorola's argument that there should be only one 20 MHz cellular system. Motorola's main contention, that cellular capacity should be cut to preserve additional spectrum for private radio licensees, is categorically rejected. Motorola's own data, moreover, supports the conclusion that there should be two 20 MHz systems per market. The costs per subscriber, after a threshold point, are relatively constant whether one 20 MHz system, two 20 MHz systems, or 40 MHz systems are licensed. Motorola's argument that before this threshold point is reached a single 20 MHz system will be less costly (and that the threshold will be reached only in a few markets for many years) is suspect for two reasons. First, Motorola's conclusions are based on a limited view of the demand for cellular service. Second, Motorola bases its cost results on implementing its full cellular design initially, rather than the simplified start-up